

Amendments to the Claims:

1 1. (currently amended) A method for coordinating execution of compound Web services
2 over a network, the method comprising the computer-implemented steps of:
3 receiving a request for a particular compound Web service that uses output from at
4 least a first Web service and a second Web service;
5 reading dependency information specific to the particular compound Web service,
6 wherein the dependency information specifies a sequence in which a plurality
7 of modules must be executed to perform the particular compound Web
8 service;
9 wherein at least one of the plurality of modules is from a group consisting of:
10 a transformation module that transforms, based on an associated module
11 property that specifies a particular one or more XSLT stylesheets
12 specifically for transforming data for the particular compound Web
13 service, an input data structure into an output data structure that is
14 different from the input data structure.
15 a message splitter module that divides, based on an associated module
16 property that specifies a particular one or more XSLT stylesheets
17 specifically for splitting input messages for the particular compound
18 Web service, an input message into a plurality of output messages, and
19 a message merger module that merges, based on an associated module
20 property that specifies a particular one or more XSLT stylesheets
21 specifically for merging output messages associated with the particular
22 compound Web service, a plurality of input messages into a single
23 output message;
24 wherein properties of the plurality of modules are defined and set specifically for the
25 particular compound Web service at service design time and persist through
26 service runtime;
27 based on the dependency information, coordinating execution of the plurality of
28 modules in the specified sequence, wherein the plurality of modules includes
29 [[at least]] a first service execution module having a module property that is
30 set specifically for coordinating execution of the first Web service and a

31 second service execution module having a module property that is set
32 specifically for coordinating execution of the second Web service;
33 controlling execution of the particular compound Web service using the properties of
34 the plurality of modules defined and set for the particular compound Web
35 service; and
36 generating a result of the compound Web service based on the output from the first
37 and second Web services.

- 1 2. (original) The method of claim 1 wherein the dependency information specifies the
2 sequence as a directed graph and the step of coordinating execution of the plurality of
3 modules in the sequence includes coordinating according to information represented
4 by the directed graph.
- 1 3. (original) The method of claim 1 wherein the step of coordinating execution of the
2 first service includes coordinating execution of a second compound service that uses
3 output from at least a third service and a fourth service.
- 1 4. (original) The method of claim 1 wherein the request for execution of the compound
2 service is received from a source, the method further comprising the step of:
3 transmitting the result of the compound service to the source.
- 1 5. (original) The method of claim 1 wherein the request for execution of the compound
2 service is received from a source, the method further comprising the step of:
3 transmitting the result of the compound service to a destination different than the
4 source.
- 1 6. (original) The method of claim 1 wherein the dependency information specifies a
2 sequence in which a transformation module must be executed to perform the
3 compound service and the step of coordinating execution of the plurality of modules
4 in the sequence includes coordinating execution of the transformation module to
5 transform information received by the transformation module from a first data
6 structure to a second data structure.

- 1 7. (original) The method of claim 1 wherein the dependency information specifies a
- 2 sequence in which a splitter module must be executed to perform the compound
- 3 service and the step of coordinating execution of the plurality of modules in the
- 4 sequence includes coordinating execution of the splitter module to divide a message
- 5 received by the splitter module into a plurality of messages.
- 1 8. (original) The method of claim 1 wherein the dependency information specifies a
- 2 sequence in which a merger module must be executed to perform the compound
- 3 service and the step of coordinating execution of the plurality of modules in the
- 4 sequence includes coordinating execution of the merger module to merge a plurality
- 5 of messages received by the merger module into a single message.
- 1 9. (original) The method of claim 1 wherein the dependency information specifies a
- 2 sequence in which a conditional module must be executed to perform the compound
- 3 service and the step of coordinating execution of the plurality of modules in the
- 4 sequence includes coordinating execution of the conditional module to determine
- 5 which module to execute next based on a condition status.
- 1 10. (original) The method of claim 1 wherein the dependency information specifies a
- 2 sequence in which one or more of the plurality of modules must be executed
- 3 concurrently to perform the compound service and the step of coordinating execution
- 4 of the plurality of modules in the sequence includes coordinating concurrent
- 5 execution of the one or more modules.
- 1 11. (currently amended) A computer-readable medium storing one or more sequences of
- 2 instructions for coordinating execution of compound service over a network, wherein
- 3 execution of the one or more sequences of instructions by one or more processors
- 4 causes the one or more processors to perform the steps of:
- 5 receiving a request for a particular compound Web service that uses output from at
- 6 least a first Web service and a second Web service;
- 7 reading dependency information specific to the particular compound Web service,
- 8 wherein the dependency information specifies a sequence in which a plurality

9 of modules must be executed to perform the particular compound Web
10 service;

11 wherein at least one of the plurality of modules is from a group consisting of:
12 a transformation module that transforms, based on an associated module
13 property that specifies a particular one or more XSLT stylesheets
14 specifically for transforming data for the particular compound Web
15 service, an input data structure into an output data structure that is
16 different from the input data structure.

17 a message splitter module that divides, based on an associated module
18 property that specifies a particular one or more XSLT stylesheets
19 specifically for splitting input messages for the particular compound
20 Web service, an input message into a plurality of output messages, and
21 a message merger module that merges, based on an associated module
22 property that specifies a particular one or more XSLT stylesheets
23 specifically for merging output messages associated with the particular
24 compound Web service, a plurality of input messages into a single
25 output message;

26 wherein properties of the plurality of modules are defined and set specifically for the
27 particular compound Web service at service design time and persist through
28 service runtime;

29 based on the dependency information, coordinating execution of the plurality of
30 modules in the specified sequence, wherein the plurality of modules includes
31 [[at least]] a first service execution module having a module property that is
32 set specifically for coordinating execution of the first Web service and a
33 second service execution module having a module property that is set
34 specifically for coordinating execution of the second Web service;

35 controlling execution of the particular compound Web service using the properties of
36 the plurality of modules defined and set for the particular compound Web
37 service; and

38 generating a result of the compound Web service based on the output from the first
39 and second Web services.

- 1 12. (original) The computer-readable medium of claim 11 wherein the dependency
2 information specifies the sequence as a directed graph and the execution of the one or
3 more sequences of instructions by one or more processors causes the one or more
4 processors to perform the step of coordinating execution of the plurality of modules
5 in the sequence including coordinating according to information represented by the
6 directed graph.
- 1 13. (original) The computer-readable medium of claim 11 wherein the execution of the
2 one or more sequences of instructions by one or more processors causes the one or
3 more processors to perform the step of coordinating execution of the plurality of
4 modules in the sequence including coordinating execution of a second compound
5 service that uses output from at least a third service and a fourth service.
- 1 14. (original) The computer-readable medium of claim 11 wherein the
2 request for execution of the compound service is received from a source
3 and the execution of the one or more sequences of instructions by one or
4 more processors causes the one or more processors to perform the step
5 of:
6 transmitting the result of the compound service to the source.
- 1 15. (original) The computer-readable medium of claim 11 wherein the
2 request for execution of the compound service is received from a source
3 and the execution of the one or more sequences of instructions by one or
4 more processors causes the one or more processors to perform the step
5 of:
6 transmitting the result of the compound service to a destination different than the
7 source.
- 1 16. (original) The computer-readable medium of claim 11 wherein the dependency
2 information specifies a sequence in which a transformation module must be executed
3 to perform the compound service and the execution of the one or more sequences of
4 instructions by one or more processors causes the one or more processors to perform

5 the step of coordinating execution of the plurality of modules in the sequence
6 including coordinating execution of the transformation module to transform
7 information received by the transformation module from a first data structure to a
8 second data structure.

1 17. (original) The computer-readable medium of claim 11 wherein the dependency
2 information specifies a sequence in which a splitter module must be executed to
3 perform the compound service and the execution of the one or more sequences of
4 instructions by one or more processors causes the one or more processors to perform
5 the step of coordinating execution of the plurality of modules in the sequence
6 including coordinating execution of the splitter module to divide a message received
7 by the splitter module into a plurality of messages.

1 18. (original) The computer-readable medium of claim 11 wherein the dependency
2 information specifies a sequence in which a merger module must be executed to
3 perform the compound service and the execution of the one or more sequences of
4 instructions by one or more processors causes the one or more processors to perform
5 the step of coordinating execution of the plurality of modules in the sequence
6 including coordinating execution of the merger module to merge a plurality of
7 messages received by the merger module into a single message.

1 19. (original) The computer-readable medium of claim 11 wherein the dependency
2 information specifies a sequence in which a conditional module must be executed to
3 perform the compound service and the execution of the one or more sequences of
4 instructions by one or more processors causes the one or more processors to perform
5 the step of coordinating execution of the plurality of modules in the sequence
6 including coordinating execution of the conditional module to determine which
7 module to execute next based on a condition status.

1 20. (original) The computer-readable medium of claim 11 wherein the dependency
2 information specifies a sequence in which one or more of the plurality of modules
3 must be executed concurrently to perform the compound service and the execution of
4 the one or more sequences of instructions by one or more processors causes the one

5 or more processors to perform the step of coordinating execution of the plurality of
6 modules in the sequence including coordinating concurrent execution of the one or
7 more modules.

1 21. (currently amended) A computer program product storing one or more sequences of
2 instructions executable by a computer, the computer program product comprising:
3 a plurality of invokable modules, wherein at least a subset of the plurality of
4 invokable modules are configurable by setting one or more properties for
5 controlling execution of corresponding particular compound Web services;
6 wherein at least one of the plurality of invokable modules is from a set consisting of:
7 a transformation module that transforms, based on an associated module
8 property that specifies a particular one or more XSLT stylesheets
9 specifically for transforming data for the particular compound Web
10 service, an input data structure into an output data structure that is
11 different from the input data structure,
12 a message splitter module that divides, based on an associated module
13 property that specifies a particular one or more XSLT stylesheets
14 specifically for splitting input messages for the particular compound
15 Web service, an input message into a plurality of output messages, and
16 a message merger module that merges, based on an associated module
17 property that specifies a particular one or more XSLT stylesheets
18 specifically for merging output messages associated with the particular
19 compound Web service, a plurality of input messages into a single
20 output message;
21 wherein properties of the plurality of invokable modules are defined and set for
22 corresponding particular compound Web services at compound Web service
23 design time and persist through compound Web service runtime; and
24 a compound service execution adapter configured to coordinate execution of the
25 invokable modules according to particular dependency information
26 corresponding to particular compound Web services, wherein the dependency
27 information specifies a sequence in which the plurality of invokable modules,
28 with at least one of the one or more properties set, must be executed to

29 perform particular compound Web services by utilizing properties defined and
30 set specifically for the particular compound Web services.

- 1 22. (original) The system of claim 21 wherein the dependency information is a directed
2 graph.
- 1 23. (original) The system of claim 21 wherein the request received by the compound
2 service execution adapter is converted to an Extensible Markup Language (XML) file
3 by the compound service execution adapter.
- 1 24. (original) The system of claim 21 wherein the plurality of invokable modules includes
2 one or more message transformation modules configured to transform a first
3 arrangement of received message information into a second arrangement of message
4 information.
- 1 25. (original) The system of claim 24 wherein the received message information is an
2 Extensible Markup Language (XML) message and is transformed by applying an
3 Extensible Stylesheet Language Transformation (XSLT) stylesheet to the XML
4 message.
- 1 26. (original) The system of claim 21 wherein the plurality of invokable modules includes
2 one or more message splitter modules configured to divide an input message into a
3 plurality of output messages.
- 1 27. (original) The system of claim 26 wherein the input message is an Extensible Markup
2 Language (XML) message and is divided by applying an Extensible Stylesheet
3 Language Transformation (XSLT) stylesheet to the XML message.
- 1 28. (original) The system of claim 21 wherein the plurality of invokable modules includes
2 one or more message merger modules configured to merge a plurality of input
3 messages into a single output message.
- 1 29. (original) The system of claim 28 wherein the input messages are Extensible Markup
2 Language (XML) messages and are merged by applying an Extensible Stylesheet
3 Language Transformation (XSLT) stylesheet to the XML message.

- 1 30. (original) The system of claim 21 wherein the plurality of invokable modules includes
2 one or more service execution modules configured to interpret one or more received
3 messages as a request for a second compound service constituent to the compound
4 service.
- 1 31. (original) The system of claim 21 wherein the plurality of invokable modules includes
2 one or more conditional modules configured to direct the compound service
3 execution adapter according to a condition status as to which invokable module to
4 next execute.
- 1 32. (original) The system of claim 21 wherein the dependency information specifies a
2 sequence in which one or more of the plurality of invokable modules must be
3 executed concurrently to perform the compound service and the compound service
4 execution adapter coordinates concurrent execution of the one or more invokable
5 modules according to the sequence.
- 1 33. (previously presented) A method for managing execution of a compound Web service
2 that is defined using the Web Service Definition Language (WSDL), the method
3 comprising the computer-implemented steps of:
4 specifying a particular compound Web service by generating a directed graph that
5 indicates a sequence in which a plurality of base Web services must be executed
6 to perform the particular compound Web service, wherein each node of the
7 graph corresponds to a module, and wherein each module includes one or more
8 properties and communicates with one or more other modules via one or more
9 event messages, and wherein the one or more properties are set at compound
10 Web service design time specifically for controlling execution of the plurality of
11 base services and persist through compound Web service runtime; and
12 wherein at least one module is from a set consisting of:
13 a service execution module that, based on the module properties set specifically
14 for the particular compound Web service, interprets one or more input
15 messages as a request for the compound Web service and generates a

16 result output message based on one or more responses from the plurality
17 of base Web services,
18 a message transformation module that transforms, based on an associated
19 module property that specifies a particular one or more XSLT stylesheets
20 specifically for transforming data for the particular compound Web
21 service, an input data structure of one or more event messages into an
22 output data structure different than the input data structure,
23 a message splitter module that divides, based on an associated module property
24 that specifies a particular one or more XSLT stylesheets specifically for
25 splitting input messages for the particular compound Web service, an
26 input message into a plurality of output messages, and
27 a message merger module that merges, based on an associated module property
28 that specifies a particular one or more XSLT stylesheets specifically for
29 merging output messages associated with the particular compound Web
30 service, a plurality of input messages into a single output message.

1 34. (previously presented) The method of Claim 1, wherein the compound, first and second
2 Web services are defined using Web Service Definition Language (WSDL).

3 35. (previously presented) The method of Claim 1, wherein at least one of the first and
4 second Web services are developed by a first party and wherein the compound Web
5 service is developed by a second party that is different from the first party.